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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,830	01/24/2007	Takeshi Karato	2593-0165PUS1	6227

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EXAMINER

SCOTT, ANGELA C

ART UNIT	PAPER NUMBER
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1796

NOTIFICATION DATE	DELIVERY MODE
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07/01/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/577,830	Applicant(s) KARATO ET AL.	
	Examiner Angela C. Scott	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3 and 5-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,3 and 5-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The Applicant's reply of January 22, 2008 has been fully considered. Claims 1 and 4 have been cancelled, claims 2-3, 5-11, and 13 have been amended, and claims 14 and 15 have been added. Claims 2-3 and 5-15 are pending.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 2-3, 5-13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konno et al. (WO 02/20655) in view of Matsuda et al. (WO 03/085010). For convenience, the citations below for Konno et al. and Matsuda et al. are taken from the English language equivalents, US 2004/0030027 and US 2005/0171276, respectively.

Regarding claims 5-8, 13, and 15, Konno et al. teaches a process of making a composite material comprising mixing an aqueous dispersion of a diene-based rubber, such as a styrene-butadiene copolymer rubber (§22) with a styrene content of preferably 15-40% by mass (§44), with an aqueous dispersion of an inorganic compound (§68, 71), such as silica (§53); then, drying (heating) the mixture to a temperature of about 130° C; finally, compounding the mixture with another rubber component, such as polybutadiene rubber, to form a rubber composition. It is known that the glass transition temperature of styrene-butadiene copolymer rubber is about - 50° C when the bound styrene content is about 24%, which falls within the range taught in the reference as does the Tg. As the styrene content is increased, the Tg also increases.

Konno et al. does not teach that the mixture contains at least 30 weight % of toluene insoluble components. However, Matsuda et al. does teach a styrene resin composition where the content of components which are insoluble in toluene is in the range of from 5 to 75% by weight (§496). Konno et al. and Matsuda et al. are combinable because they are from the same field of endeavor, namely that of styrene resin/rubber compositions. At the time of the invention, a person of ordinary skill in the art would have found it obvious to have a content of components which are insoluble in toluene in the above range, as taught by Matsuda et al., in the mixture, as taught by Konno et al., and would have been motivated to do so because when the content is

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lower than 5% by weight, the impact resistance becomes poor and when its too high, the fluidity becomes lowered (§496).

Konno et al. does not teach that the polybutadiene rubber has a glass transition temperature such that the difference in absolute value between the glass transition temperature of it and the styrene-butadiene rubber is 3° C to 100° C. However, it is well known in the art to change result effective variables such as glass transition temperatures. At the time of the invention, a person of ordinary skill in the art would have found it obvious to optimize the glass transition temperature of rubber (b) through routine experimentation and would have been motivated to do so in order to increase the compatibility and processibility between the two rubbers. See MPEP §2144.05.

Regarding claims 2-3, Konno et al. additionally teaches that the amount of silica introduced into the composite is within a range of 5-200 parts by mass per 100 parts by mass of the diene based rubber (§61).

Regarding claim 9, Konno et al. additionally teaches that a filler is used in the rubber composition in an amount of 5-85 parts by mass based on 100 parts by mass of the rubber component (§82).

Regarding claim 11, Konno et al. additionally teaches that the composition produced by the method also comprises a crosslinking agent (§76).

Regarding claim 12, Konno et al. additionally teaches an article produced from the composition (§89).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konno et al. (WO 02/20655) in view of Matsuda et al. (WO 03/085010) as applied to claim 13 above, and further in view of von Hellens (US 6,407,153). For convenience, the citations below for Konno et al. are taken from English language equivalent, US 2004/0030027.

Konno et al. teaches the basic process of claim 13. Konno et al. does not explicitly teach that the weight ratio between the two rubbers is 95:5 to 5:95. However, von Hellens teaches a composition where the ratio of styrene-butadiene rubber to polybutadiene rubber is 70:30 (Col. 17, lines 14-15). Konno et al. and von Hellens are combinable because they are from the same field of endeavor, namely that of styrene butadiene/silica composites. At the time of the

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invention, a person of ordinary skill in the art would have found it obvious to use the rubbers in these ratios, as taught by von Hellens, in the composition, as taught by Konno et al., and would have been motivated to do so in order to improve traction, abrasion and rolling resistance properties of the articles made from the composition (Col. 2, lines 5-10).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konno et al. (WO 02/20655) in view of Matsuda et al. (WO 03/085010) as applied to claim 13 above, and further in view of Konno et al. (US 2002/0111418). For convenience, the citations below for Konno et al. are taken from English language equivalent, US 2004/0030027.

Konno et al. ('655) teaches the basic process of claim 13. Konno et al. ('655) does not teach that mixing the dispersions in the presence of a cationic polymer having a weight average molecular weight of 1,000 to 1,000,000. However, Konno et al. ('418) does teach a mixture of dispersions of a diene based rubber and silica being mixing with a cationic polymer (¶64). Konno et al. ('655) and Konno et al. ('418) are combinable because they are from the same field of endeavor, namely that of diene based rubber/inorganic compound composites. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use a cationic polymer, as taught by Konno et al. ('418), in the composition, as taught by Konno et al. ('655), and would have been motivated to do so because the cationic polymer induces coagulation between the two dispersions (¶64).

The weight average molecular weight of the cationic is not explicitly taught in the reference. However, the cationic polymer of the reference is serving the same purpose in the reference as is the cationic polymer in the instant application. Moreover, the molecular weight range is very broad. Therefore, since the polymer is acting in the same capacity in the reference and in the instant application, and the molecular weight range is so broad, the molecular weight of the cationic polymer of the reference is deemed to fall within the claimed molecular weight range.

Response to Arguments

Applicant's arguments with respect to claims 2-3 and 5-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela C. Scott whose telephone number is (571) 270-3303. The examiner can normally be reached on Monday through Friday, 8:30am to 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARK EASHOO/
Supervisory Patent Examiner, Art Unit 1796
21-Jun-08

/A. C. S./
Examiner, Art Unit 1796